

FIELD CONDITIONS AT THE MARICOPA AGRICULTURAL CENTER, PINAL COUNTY, ARIZONA, JUNE 26–28, 1990

By Sandra J. Owen-Joyce

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CONVERSION FACTORS

	Multiply	By	To obtain
<i>Length</i>			
	kilometer (km)	0.621	mile
	meter (m)	3.281	foot
	millimeter (mm)	0.03937	inch

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ABSTRACT

Field conditions were documented during the Landsat and SPOT satellite overpasses of the Maricopa Agricultural Center, Pinal County, Arizona, on June 27 and 28, 1990. Crop types were mapped and photographed for each demonstration farm field, and irrigation, cultivation, and orientation of rows are described. Field and photographic descriptions are presented in tabular and graphic form.

INTRODUCTION

The fifth in a series of experiments was held at the Maricopa Agricultural Center (MAC; fig. 1) June 26-28, 1990, to correspond with the overpasses of the Landsat and SPOT satellites on June 27 and 28. The purpose of the MAC V Experiment was to investigate crop water use and plant response. Major objectives were to measure water use and components of the energy balance of alfalfa and cotton fields using a variety of instruments and techniques and to characterize the spatial variation in plant distribution using aircraft and satellite sensors.

The U.S. Geological Survey, in cooperation with the U.S. Bureau of Reclamation, is conducting research to evaluate the spatial and temporal variability of point data collected at weather stations for use with satellite-image data in estimating local evapotranspiration. The data collection at the weather stations is being done under contract with the University of Arizona. This work is being done at MAC during the MAC experiments under an umbrella agreement whereby scientists that work independently can cooperatively share the data collected. This report documents the field conditions at the time of the Landsat and SPOT overpasses on June 27 and 28, 1990.

Field conditions have been documented previously at MAC to correspond with the acquisition of satellite imagery. Data on crop types and field conditions are available for June 1988 (Owen-Joyce, 1988), April 1989 (Owen-Joyce, 1989a), June 1989 (Owen-Joyce, 1989b), and September 1989 (Owen-Joyce, 1989c).

FIELD CONDITIONS

Ground-truth data were collected to coincide with the Landsat and SPOT satellite overpasses on June 27 and 28, 1990, respectively. The data include crop type for each field on the demonstration

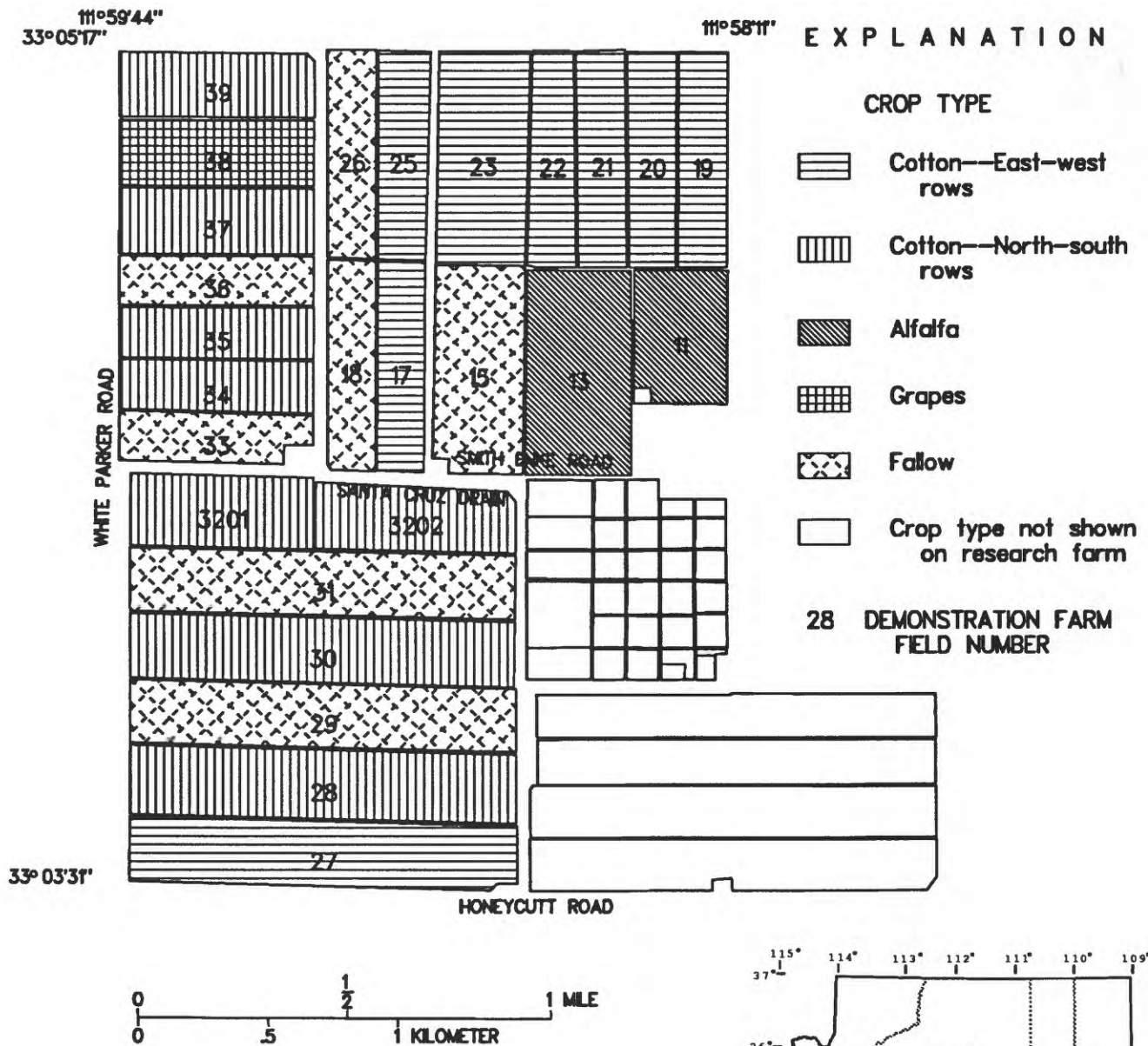


Figure 1.—Location of the Maricopa Agricultural Center (MAC), Pinal County, Arizona, and crop types on June 27–28, 1990.

farm, a description of the crop and field conditions, and photographs (35-millimeter slides) of the fields. Photographs were taken on June 27 and 28 to document field conditions and to provide ground truth for interpretation of the satellite data. Photographs also were taken of participating scientists and their equipment during data collection.

Crop types and descriptions of the fields are presented in table 1. Field boundaries and the crop type in each demonstration farm field are shown in figure 1. The generalized location from which each photograph was taken, the direction of view, and a brief description of conditions that the photograph documents are listed in table 2. The locations from which photographs documenting field conditions were taken are shown in figures 2 and 3; where possible, these photographs were taken viewing 180° away from the sun. Selected slides were duplicated and are available at the U.S. Water Conservation Laboratory, Phoenix, Arizona; these slides are footnoted in table 2.

Conditions also were noted in the fields outside the farm but immediately adjacent to boundary roads of the demonstration farm. Cotton is planted in east-west rows and every fifth row is skipped in the fields east of field 19 and north of field 23. On June 28, the cotton field north of field 23 had standing water at the south end and the cotton field east of field 19 graded from wet in the southern part to standing water 400 m north. Cotton is planted in east-west rows west of fields 33-39. On June 26, the cotton field west of field 33 had standing water at the south end. Cotton is planted in north-south rows north of field 39 and south of the west half of field 27. South of the east half of field 27 is a field of cotton in east-west rows that is west of a fallow field with clods. The fields east of field 11, northwest of field 39, and north of fields 25 and 26 are fallow with clods. North of fields 19-22 is natural desert vegetation. West of fields 27 to 3201, the land is planted with mature pecan trees.

REFERENCES CITED

- Owen-Joyce, S.J., 1988, Field conditions at the Maricopa Agricultural Center, Maricopa County, Arizona, June 13, 1988: U.S. Geological Survey Open-File Report 88-708, 5 p.
- _____, 1989a, Field conditions at the Maricopa Agricultural Center, Pinal County, Arizona, April 9, 1989: U.S. Geological Survey Open-File Report 89-377, 14 p.
- _____, 1989b, Field conditions at the Maricopa Agricultural Center, Pinal County, Arizona, June 16, 1989: U.S. Geological Survey Open-File Report 89-392, 11 p.
- _____, 1989c, Field conditions at the Maricopa Agricultural Center, Pinal County, Arizona, September 28, 1989: U.S. Geological Survey Open-File Report 89-590, 12 p.

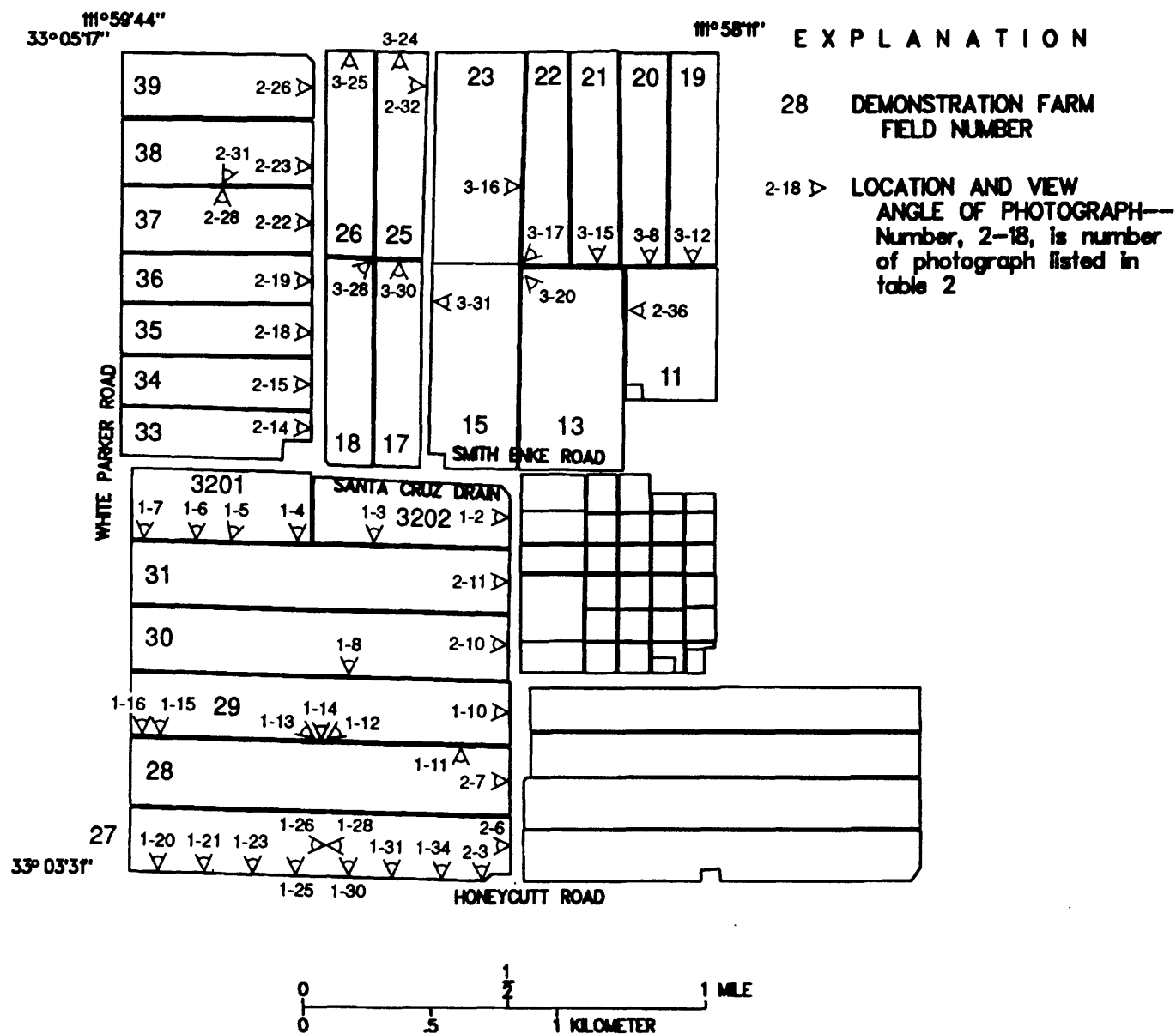


Figure 2.—Location and view direction of photographs taken to document field conditions on the demonstration farm, Maricopa Agricultural Center, June 27, 1990.

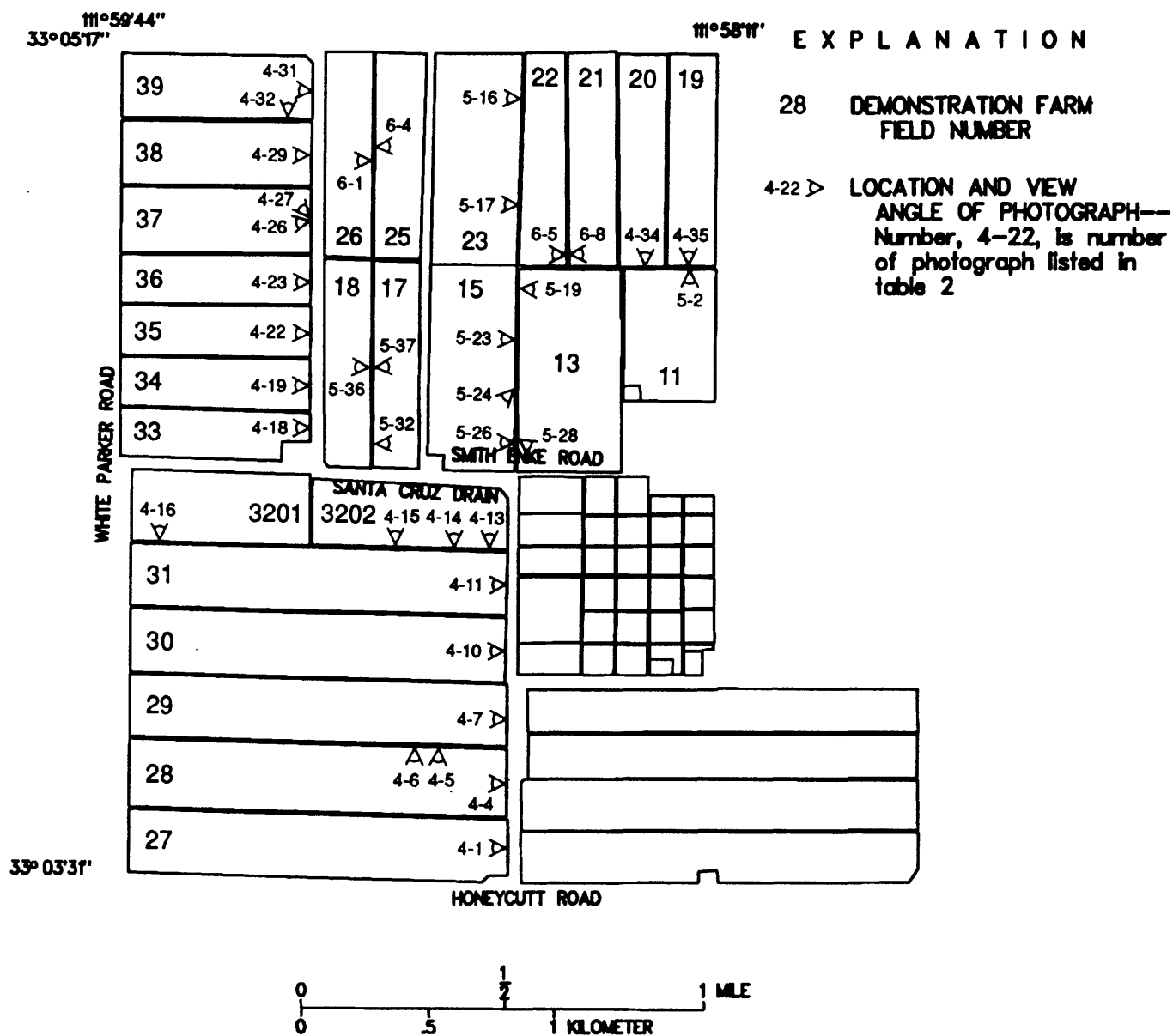


Figure 3.—Location and view direction of photographs taken to document field conditions on the demonstration farm, Maricopa Agricultural Center, June 28, 1990.

Table 1.--Ground-truth data for fields on the demonstration farm, Maricopa Agricultural Center, on June 26, 1990

Maricopa Agricultural Center Field Number ¹	Crop	Description
11	Alfalfa	Full cover with flowers. Soil damp.
13	Alfalfa	Full cover with flowers. Soil damp.
15	Fallow	Clods in the north 200 m. South 1400 m dragged smooth with some clods and some wheat stubble. Dry.
17	Cotton	East-west rows, not cultivated. White/pink flowers.
18	Fallow	Plowed, clods, and wheat stubble. Dry.
19	Cotton	East-west rows. Cultivated. Dry. White flowers.
20	Cotton	East-west rows. Cultivated. Dry. White flowers.
21	Cotton	East-west rows. Not cultivated. Dry. Yellow flowers.
22	Cotton	East-west rows. Not cultivated. Dry. Yellow flowers.
23	Cotton	East-west rows. Cultivated. Dry in northern part, beginning to irrigate in south end. White/pink flowers.
25	Cotton	East-west rows. Not cultivated. Wet in southern part, standing water in north end. White/pink flowers.
26	Fallow	Plowed, clods, and wheat stubble. Dry.
27	Cotton	East-west rows. Cultivated. Dry at surface. Drip-irrigated field. Benches ² 1 and 2 contain tallest cotton with no weeds and have carbon dioxide rings set up. Bench 3 has no weeds. Bench 4 has both ground-hugging weeds and other weeds as tall as or taller than the cotton plants. Bench 5 has ground-hugging weeds. Bench 6 has no weeds. Bench 7 is dense with ground-hugging and tall weeds; tall weeds have white flowers. Bench 8 has the shortest cotton plants and few weeds.
28	Cotton	North-south rows. Cultivated. Dry.
29	Fallow	Plowed, clods with wheat stubble. The west end has a small plot of cotton with weeds, of which the east half has standing water and the west half is dry.
30	Cotton	North-south rows. Cultivated. Dry.
31	Fallow	Plowed, clods. Dry.
3201	Cotton	North-south rows. Cultivated where dry at west end. East end is wet, middle has standing water. White flowers.
3202	Cotton	Same as field 3201. Benches 6 and 7 have open areas without plants and replanted areas where plants are smaller.
33	Fallow	Plowed, clods, some stubble. Dry.
34	Cotton	North-south rows. Not cultivated. Dry.
35	Cotton	North-south rows. Not cultivated. Dry.
36	Fallow	Plowed, clods. Dry.
37	Cotton	North-south rows. Not cultivated. Dry.
38	Grapes	North-south rows. Not cultivated. Dry.
39	Cotton	North-south rows. Not cultivated. Dry in middle, wet at each end.

¹Fields plotted on figure 1.

²One-mile-wide fields are divided into 4 or 8 parts called benches. Benches differ in altitude and are numbered from east to west.

Table 2.--Photographs (35-millimeter slides) taken of fields on the demonstration farm, Maricopa Agricultural Center, and of scientists and equipment on June 27 and 28, 1990

[Location and View direction: SE, Southeast; SW, Southwest; NE, Northeast; NW, Northwest; ENE, East northeast; NNW, North northwest. Description: MAC, Maricopa Agricultural Center; CCD, Charge Coupled Device; AZMET, Arizona Meteorological Network; LIDAR, Light Detection and Ranging; WCL, Water Conservation Laboratory]

Date	Time	Slide	Field number	Location	View direction	Description
6/27/90	--	11-1	3202	East side	West	Same as 1-2, closer view.
"	--	11-2	3202	" "	West	Cotton, white flowers. Wet.
"	--	11-3	3202	South side	North	Example of wet soil in bench ² 3.
"	--	11-4	3201	" "	North	Example of wet soil drying at the surface in bench 5.
"	--	11-5	3201	" "	North	Example of wet soil drying at the surface and areas of sparse cotton.
"	--	11-6	3201	" "	North	Example of wet soil drying at the surface and large areas of sparse cotton.
"	--	11-7	3201	" "	North	Standing water in cotton field.
"	--	1-8	30	" "	North	Cotton, white/pink flowers. Dry.
"	--	11-9	29	East side	West	Same as 1-10, closer view.
"	--	11-10	29	" "	West	Bench 1, fallow, clods, wheat stubble. Dry.
"	--	1-11	28	North side	South	Cotton, border between dry, cultivated and standing water.
"	1025	11-12	29	South side	NE	Bench 2, fallow, plowed, clods, wheat stubble. Dry.
"	1025	11-13	29	" "	NW	Bench 3, fallow, plowed, smaller clods and less stubble than to the east. Dry.
"	1025	11-14	29	" "	North	Contrast of fallow textures between benches 2 and 3.
"	1032	11-15	29	" "	North	Bench 4, contrast of fallow to weedy cotton at west end.
"	1034	11-16	29	" "	North	Bench 4, contrast of dry to irrigated cotton at west end.
"	--	11-17	28	NW corner	--	Sky condition, broken clouds, hot.
"	--	11-18	29	SW corner	ENE	Sky condition, broken clouds with more clouds and haze to the east.
"	--	11-19	29	" "	NE	Sky condition and Cessna ³ over field 29.
"	--	11-20	27	South side	North	Bench 8, cotton, cultivated, few weeds. Dry.
"	--	11-21	27	" "	North	Bench 7, cotton, cultivated, some weeds. Dry.

See footnotes at end of table.

Table 2.--Photographs (35-millimeter slides) taken of fields on the demonstration farm, Maricopa Agricultural Center, and of scientists and equipment on June 27 and 28, 1990--Continued

Date	Time	Slide	Field number	Location	View direction	Description
6/27/90	--	1-22	27	South side	North	Same as 1-21, wider view.
"	--	1-23	27	" "	North	Bench 6, cotton, cultivated. Dry.
"	--	1-24	27	" "	North	Same as 1-23, closer view.
"	1048	1-25	27	" "	North	Bench 5, cotton, cultivated, more weeds, shorter cotton plants. Dry.
"	--	1-26	27	Middle	West	Bench 5, cotton, cultivated, mostly low weeds, some clear areas and sparse growth. Dry.
"	--	1-27	27	"	East	Same as 1-28, closer view.
"	--	1-28	27	"	East	Bench 4, cotton with weeds taller than cotton and blooming. Dry.
"	--	1-29	27	South side	North	Same as 1-30, closer view.
"	--	1-30	27	" "	North	Bench 4, cotton with tall weeds. Dry.
"	--	1-31	27	" "	North	Bench 3, cotton, cultivated, no weeds. Dry.
"	--	1-32	27	" "	North	Same as 1-31, closer view.
"	--	1-33	27	" "	North	Same as 1-34, closer view.
"	--	1-34	27	" "	North	Bench 2, cotton, cultivated, no weeds, carbon dioxide rings. Dry at surface.
"	--	1-35	27	" "	NE	Bench 2, cotton with carbon dioxide rings.
"	--	1-36	27	" "	NE	Same as 1-35, closer view.
"	--	1-37	27	" "	West	Los Alamos National Laboratory CCD camera in SE corner of bench 2.
"	--	2-1	27	SE corner	NW	Los Alamos National Laboratory CCD camera set up in SE corner of bench 2 to detect plant stress. Chris Borel and Bruce Letellier.
"	--	12-2	27	" "	NW	Same as 2-1.
"	1109	12-3	27	South side	North	Bench 1, cotton, cultivated, carbon dioxide rings. Dry at surface.
"	1110	12-4	27	" "	North	Same as 2-3, closer view.
"	--	12-5	27	East side	West	Same as 2-6, closer view.
"	--	12-6	27	" "	West	Cotton, cultivated. Dry at surface.
"	1138	12-7	28	" "	West	Cotton, cultivated. Dry.
"	1138	12-8	28	" "	West	Same as 2-7, closer view.
"	1142	12-9	30	" "	West	Same as 2-10, closer view.

See footnotes at end of table.

Table 2.--Photographs (35-millimeter slides) taken of fields on the demonstration farm, Maricopa Agricultural Center, and of scientists and equipment on June 27 and 28, 1990--Continued

Date	Time	Slide	Field number	Location	View direction	Description
6/27/90	1142	12-10	30	East side	West	Cotton, cultivated. Dry.
"	--	12-11	31	" "	West	Fallow, plowed, clods. Dry.
"	--	12-12	31	" "	West	Same as 2-11, closer view.
"	1146	12-13	33	" "	West	Same as 2-14, closer view.
"	1146	12-14	33	" "	West	Fallow, plowed, clods, wheat stubble. Dry.
"	1148	12-15	34	" "	West	Cotton, not cultivated, white/pink flowers. Dry.
"	1148	12-16	34	" "	West	Same as 2-15, closer view.
"	1150	12-17	35	" "	West	Same as 2-18, closer view.
"	1150	12-18	35	" "	West	Cotton, not cultivated. Dry.
"	1152	12-19	36	" "	West	Fallow, plowed, clods. Dry.
"	1152	12-20	36	" "	West	Same as 2-19, closer view.
"	1153	12-21	37	" "	West	Same as 2-22, closer view.
"	1153	12-22	37	" "	West	Cotton, not cultivated. Dry.
"	1155	12-23	38	" "	West	Grapes, many plants with dry, brown leaves. Standing water at east end.
"	1155	12-24	38	" "	West	Same as 2-23, closer view.
"	--	12-25	39	" "	West	Same as 2-26, closer view.
"	--	12-26	39	" "	West	Cotton, with sparse areas in east bench, not cultivated. Dry.
"	--	12-27	39	" "	NW	Same as 2-26.
"	1205	2-28	37	North side	South	Weather station in cotton field.
"	--	2-29	37	" "	South	Same as 2-28, closer view.
"	--	2-30	37	" "	SW	Weather station in cotton field.
"	1209	12-31	38	South side	NE	Grapes with start of irrigation, standing water only in south end of field moving northward.
"	--	12-32	25	East side	West	Cotton, white flowers. Wet.
"	--	12-33	25	" "	West	Same as 2-32, closer view.
"	--	2-34	25	" "	West	Cotton, wet with some standing water.
"	1530	12-35	11	West side	East	Same as 2-36, closer view.
"	1530	12-36	11	" "	East	Alfalfa, full cover.

See footnotes at end of table.

Table 2.--Photographs (35-millimeter slides) taken of fields on the demonstration farm, Maricopa Agricultural Center, and of scientists and equipment on June 27 and 28, 1990--Continued

Date	Time	Slide	Field number	Location	View direction	Description
6/27/90	1530	2-37	11	West side	--	Flowers on alfalfa.
"	--	3-1	11	" "	North	Utah State radiosonde balloon.
"	--	3-2	13	East side	NW	Cessna over alfalfa.
"	--	3-3	11	West side	SE	Rescue of radiosonde balloon and equipment from dust devil. John Prueger and Richard Wilson.
"	--	13-4	11	" "	SE	Same as 3-3.
"	--	3-5	13	East side	West	Los Alamos National Laboratory radiosonde balloon, LIDAR truck, and equipment in field.
"	--	3-6	11	West side	SE	John Prueger, Larry Hipps, Dan Cooper, and Richard Wilson.
"	--	13-7	11	" "	SE	John Prueger, Larry Hipps, and Dan Cooper.
"	--	13-8	20	South side	North	Cotton, cultivated. Dry.
"	--	13-9	20	" "	North	Same as 3-8, closer view.
"	--	13-10	11	North side	SW	Utah State radiosonde balloon and ground set up.
"	1553	13-11	19	South side	North	Same as 3-12, closer view.
"	1553	13-12	19	" "	North	Cotton, cultivated. Dry.
"	--	13-13	19	West side	East	Cotton, cultivated, partial-standing water in the 21 rows at the south end of field.
"	--	13-14	21	South side	North	Same as 3-15, closer view.
"	--	13-15	21	" "	North	Cotton, cultivated. Dry.
"	1610	13-16	23	East side	West	Boundary of standing water with about 500 m of dry, cultivated cotton to north.
"	--	13-17	22	SW corner	NE	Cotton, not cultivated. Dry.
"	--	13-18	22	" "	NE	Same as 3-17, closer view.
"	--	13-19	13	NW corner	SE	Same as 3-20, closer view.
"	--	13-20	13	" "	SE	Alfalfa, full cover with flowers.
"	--	3-21	13	" "	South	Los Alamos National Laboratory radiosonde balloon and ground set up.
"	--	13-22	13	" "	South	Same as 3-21.
"	--	13-23	25	North side	South	Same as 3-24, closer view.
"	--	13-24	25	" "	South	Cotton, not cultivated. Wet.

See footnotes at end of table.

Table 2.--Photographs (35-millimeter slides) taken of fields on the demonstration farm, Maricopa Agricultural Center, and of scientists and equipment on June 27 and 28, 1990--Continued

Date	Time	Slide	Field number	Location	View direction	Description
6/27/90	--	13-25	26	North side	South	Fallow, plowed, clods, wheat stubble. Dry. About 45 m of fallow, plowed, clods with tread marks at the north end of the field.
"	--	13-26	26	" "	South	Same as 3-25, closer view.
"	--	13-27	18	NE corner	SW	Same as 3-28, closer view.
"	--	13-28	18	" "	SW	Fallow, plowed, clods, wheat stubble. Dry.
"	--	13-29	17	North side	South	Same as 3-30, closer view.
"	--	13-30	17	" "	South	Cotton, not cultivated. Dry.
"	1630	13-31	15	West side	East	Fallow, plowed, clods in north 200 m. Fallow, dragged, some clods in south 1,400 m. Some wheat stubble in both areas. Dry.
"	1630	13-32	15	" "	East	Same as 3-31, closer view.
"	--	3-33	--	North side	South	Maricopa AZMET weather station at MAC.
"	--	3-34	--	West side	East	Same as 3-33.
"	--	3-35	--	South side	North	Same as 3-33.
"	--	3-36	--	East side	West	Same as 3-33.
6/28/90	--	14-1	27	East side	West	Cotton, carbon dioxide rings. Mostly dry at surface but some wet areas on rows at base of plants from drip irrigation.
"	--	14-2	27	East side	West	Same as 4-1, closer view.
"	--	14-3	28	" "	West	Same as 4-4, closer view.
"	--	14-4	28	" "	West	Cotton. Wet at east end.
"	--	14-5	28	North side	South	Cotton, standing water to north end and part way down furrows to west.
"	0953	4-6	28	" "	South	Cotton, beginning of irrigation at south end, dry at north end.
"	0955	14-7	29	East side	West	Fallow, plowed, clods, wheat stubble. Dry.
"	0955	14-8	29	" "	West	Same as 4-7, closer view.
"	0958	14-9	30	" "	West	Same as 4-10, closer view.
"	0958	14-10	30	" "	West	Cotton, cultivated. Dry.
"	1000	14-11	31	" "	West	Fallow, plowed, clods. Dry.
"	1000	14-12	31	" "	West	Same as 4-11, closer view.

See footnotes at end of table.

Table 2.--Photographs (35-millimeter slides) taken of fields on the demonstration farm, Maricopa Agricultural Center, and of scientists and equipment on June 27 and 28, 1990--Continued

Date	Time	Slide	Field number	Location	View direction	Description
6/28/90	--	14-13	3202	South side	North	Cotton, not cultivated. Dry at surface.
"	--	14-14	3202	" "	North	Cotton, not cultivated. Wet but drying along south edge.
"	--	14-15	3202	" "	North	Cotton, not cultivated. Wet.
"	--	14-16	3201	" "	North	Cotton, not cultivated. Wet but drying at surface.
"	--	14-17	33	East side	West	Same as 4-18, closer view.
"	--	14-18	33	" "	West	Fallow, plowed, clods, wheat stubble. Dry.
"	1016	14-19	34	" "	West	Cotton, tractor cultivating east to west. Dry.
"	1016	14-20	34	" "	West	Same as 4-19, closer view.
"	--	14-21	35	" "	West	Same as 4-22, closer view.
"	--	14-22	35	" "	West	Cotton, not cultivated. Dry.
"	--	14-23	36	" "	West	Fallow, plowed, clods. Dry.
"	--	14-24	36	" "	West	Same as 4-23, closer view.
"	--	14-25	37	" "	West	Same as 4-26, closer view.
"	--	14-26	37	" "	West	Cotton, not cultivated. Dry.
"	--	4-27	37	" "	NW	Scientists working in cotton field.
"	--	14-28	38	" "	West	Same as 4-29, closer view.
"	--	14-29	38	" "	West	Grapes. Wet at east end.
"	--	14-30	39	" "	West	Same as 4-31, closer view.
"	--	14-31	39	" "	West	Cotton, not cultivated. East end sparse. Dry.
"	--	14-32	39	South side	North	Cotton, not cultivated. Dry. Break between sparse area and full rows of plants to west.
"	--	14-33	20	" "	North	Same as 4-34, closer view.
"	--	14-34	20	" "	North	Cotton, cultivated. Dry.
"	1056	14-35	19	" "	North	Cotton, cultivated. Wet at south end.
"	1056	14-36	19	" "	North	Same as 4-35, closer view.
"	1057	4-37	19	" "	--	Wildflowers along canal.
"	1100	15-1	11	North side	South	Same as 5-2, closer view.
"	1100	15-2	11	" "	South	Alfalfa, full cover with flowers.

See footnotes at end of table.

Table 2.--Photographs (35-millimeter slides) taken of fields on the demonstration farm, Maricopa Agricultural Center, and of scientists and equipment on June 27 and 28, 1990--Continued

Date	Time	Slide	Field number	Location	View direction	Description
6/28/90	--	15-3	19	East side	West	Cotton, cultivated, north edge of standing water about 1,000 m from south edge of field.
"	--	15-4	19	" "	West	Same as 5-3, closer view with Cessna in air over field 21.
"	--	5-5	19	" "	West	Same as 5-4.
"	--	15-6	19	" "	West	Cessna in air over field 19.
"	--	5-7	19	" "	--	Cessna in air.
"	1111	15-8	19	" "	--	Sky condition, clear, hot.
"	1111	15-9	19	" "	SW	Sky condition.
"	1111	15-10	19	" "	SE	Sky condition.
"	1115	5-11	21	North side	--	Cotton, yellow flowers.
"	1115	15-12	21	" "	--	Cotton, yellow flowers.
"	1115	5-13	21	" "	--	Cotton plants with yellow flowers.
"	1115	15-14	21	" "	--	Cotton plants with yellow flowers.
"	1118	15-15	23	East side	West	Same as 5-16, closer view.
"	1118	15-16	23	" "	West	Cotton, cultivated. Dry.
"	--	15-17	23	" "	West	Cotton, not cultivated. Wet.
"	--	15-18	23	" "	West	Same as 5-17, closer view.
"	1128	15-19	13	West side	East	Alfalfa, full cover, scientists and equipment at north end of field.
"	1128	5-20	13	" "	ENE	Alfalfa, LIDAR truck, and scientists and equipment in field.
"	1128	15-21	13	" "	ENE	Same as 5-20, closer view.
"	1130	15-22	15	East side	West	Same as 5-23, closer view.
"	1130	15-23	15	" "	West	Fallow, plowed, clods. Dry.
"	1132	5-24	15	" "	SW	Fallow, dragged, clods, Dry. WCL scientists working on ground with Cessna in air.
"	1132	15-25	15	" "	SW	Same as 5-24.
"	--	15-26	15	" "	West	Closer view of scientists in field.
"	--	5-27	15	" "	West	Same as 5-27.
"	--	5-28	13	West side	SE	Equipment in alfalfa field.
"	--	15-29	15	" "	SW	Same as 5-24.

See footnotes at end of table.

Table 2.--Photographs (35-millimeter slides) taken of fields on the demonstration farm, Maricopa Agricultural Center, and of scientists and equipment on June 27 and 28, 1990--Continued

Date	Time	Slide	Field number	Location	View direction	Description
6/28/90	--	15-30	15	West side	SW	Same as 5-24.
"	--	5-31	15	" "	SW	Same as 5-24.
"	1140	5-32	17	" "	--	Cotton, white flowers.
"	1140	15-33	17	" "	--	Same as 5-32.
"	1140	15-34	17	" "	--	Cotton plants with white flowers.
"	1142	15-35	18	East side	West	Same as 5-36, closer view.
"	1142	15-36	18	" "	West	Fallow, plowed, clods, wheat stubble. Dry.
"	1142	15-37	17	West side	East	Cotton, not cultivated. Dry.
"	1147	16-1	26	East side	West	Fallow, plowed, clods, wheat stubble. Dry.
"	1147	16-2	26	" "	West	Same as 6-1, closer view.
"	1148	16-3	25	West side	East	Same as 6-4, closer view.
"	1148	16-4	25	" "	East	Cotton, not cultivated. Wet but dry at surface.
"	--	16-5	22	East side	West	Cotton, cultivated. Dry.
"	--	16-6	22	" "	West	Same as 6-5, closer view.
"	--	16-7	21	West side	East	Same as 6-8, closer view.
"	--	16-8	21	" "	East	Cotton, cultivated. Dry.
"	--	16-9	13	North side	South	Scientists and equipment in field.
"	--	16-10	13	" "	SE	Scientists and equipment in field, Fairley Barnes in foreground.
"	1200	6-11	13	" "	South	Same as 6-10.
"	--	16-12	13	" "	East	LIDAR.
"	--	6-13	13	" "	South	Same as 6-9.
"	--	16-14	15	South side	NE	Scientists packing gear.
"	--	6-15	15	" "	East	Cessna on ground.
"	--	16-16	15	" "	East	Susan Moran and Paul Pinter packing gear.
"	--	6-17	15	" "	North	Scientists packing gear.
"	--	6-18	15	" "	North	WCL scientists packing gear.
"	--	16-19	15	" "	North	Same as 6-18.
"	--	16-20	15	" "	East	Cessna and Dave Ammon.

See footnotes at end of table.

Table 2.--Photographs (35-millimeter slides) taken of fields on the demonstration farm, Maricopa Agricultural Center, and of scientists and equipment on June 27 and 28, 1990--Continued

Date	Time	Slide	Field number	Location	View direction	Description
6/28/90	--	16-21	15	South side	East	Cessna, Dave Ammon, and Paul Pinter.
"	--	6-22	--	ENE side	South	Casa Grande north temporary weather station.
"	--	6-23	--	" "	West	Same as 6-26.
"	--	6-24	--	" "	NNW	Same as 6-22.
"	--	6-25	--	" "	East	Same as 6-22.
"	1648	6-26	--	North side	South	Casa Grande east temporary weather station.
"	1648	6-27	--	East side	West	Same as 6-26.
"	1648	6-28	--	West side	East	Same as 6-26.
"	1648	6-29	--	North side	South	Same as 6-26.
"	1648	6-30	--	" "	South	Same as 6-26.
"	1648	6-31	--	South side	North	Same as 6-26.
6/29/90	--	6-32	--	--	--	Grain in a field near the Eloy AZMET station at the north end of T. 7 S., R. 8 E., section 18.
"	--	6-33	--	South side	North	Eloy AZMET weather station.
"	--	6-34	--	West side	East	Same as 6-33.
"	--	6-35	--	North side	South	Same as 6-33.
"	--	6-36	--	East side	West	Same as 6-33.
"	--	6-37	--	SE corner	NW	Same as 6-33.
"	--	7-1	--	North side	South	Coolidge AZMET weather station.
"	--	7-2	--	West side	East	Same as 7-1.
"	--	7-3	--	--	--	Drip-irrigated melons in wheat stubble in the field west of station.
"	--	7-4	--	South side	North	Same as 7-1.
"	--	7-5	--	East side	West	Same as 7-1.
"	--	7-6	--	--	--	Drip-irrigated melons in wheat stubble in field north of Coolidge AZMET station in center of T. 5 S., R. 7 E., section 14.

¹duplicate slides at the U.S. Water Conservation Laboratory, Phoenix, Arizona.

²One-mile-wide fields are divided into 4 or 8 parts called benches. Benches differ in altitude and are numbered from east to west.

³Use of brand names in this report is for identification purposes only and does not constitute endorsement by the U.S. Geological Survey.